Virtual Goods
Nancy, September 22, 2009

URM – Usage Rights Management

Helge Hundacker, Daniel Pähler, Rüdiger Grimm
University of Koblenz-Landau
Germany

hundacker@uni-koblenz.de
tulkas@uni-koblenz.de
grimm@uni-koblenz.de

Why Usage Rights Management?

- Apple and most labels abstain from using DRM copy protection

- Users are unaware of their usage rights
  - Copyrights laws of different countries (e.g. Fair Use)
  - Vendor-specific conditions
  - Files of different sources (CD, P2P) imply different rights

- Assumption: Users want to behave legally

  → URM can help

Usage Rights Management - Definition

- **URM…**

    …is a DRM measure – it manages rights digitally

    …is not enforcement

    …is an information tool

    …is an open approach for…

    …different media types

    …different platforms / applications

Usage Rights Management - Definition

"... URM aims to provide and visualize license files for as many virtual goods as possible …, ideally allowing the user a precise overview of the legal status of their complete collection …"

(URM – Usage Rights Management, Virtual Goods, 2009, Nancy [1])

Idea and Concept - User Administrated Licenses

- Users create licenses with rights information
  - Depending on source of file
- Visualization of rights
  - In a media library for example

- It's up to the user to abide by the law
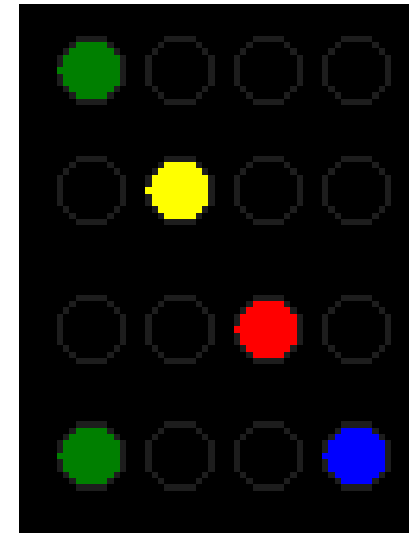- You might cheat yourself, but not the authorities

Personal Media Library
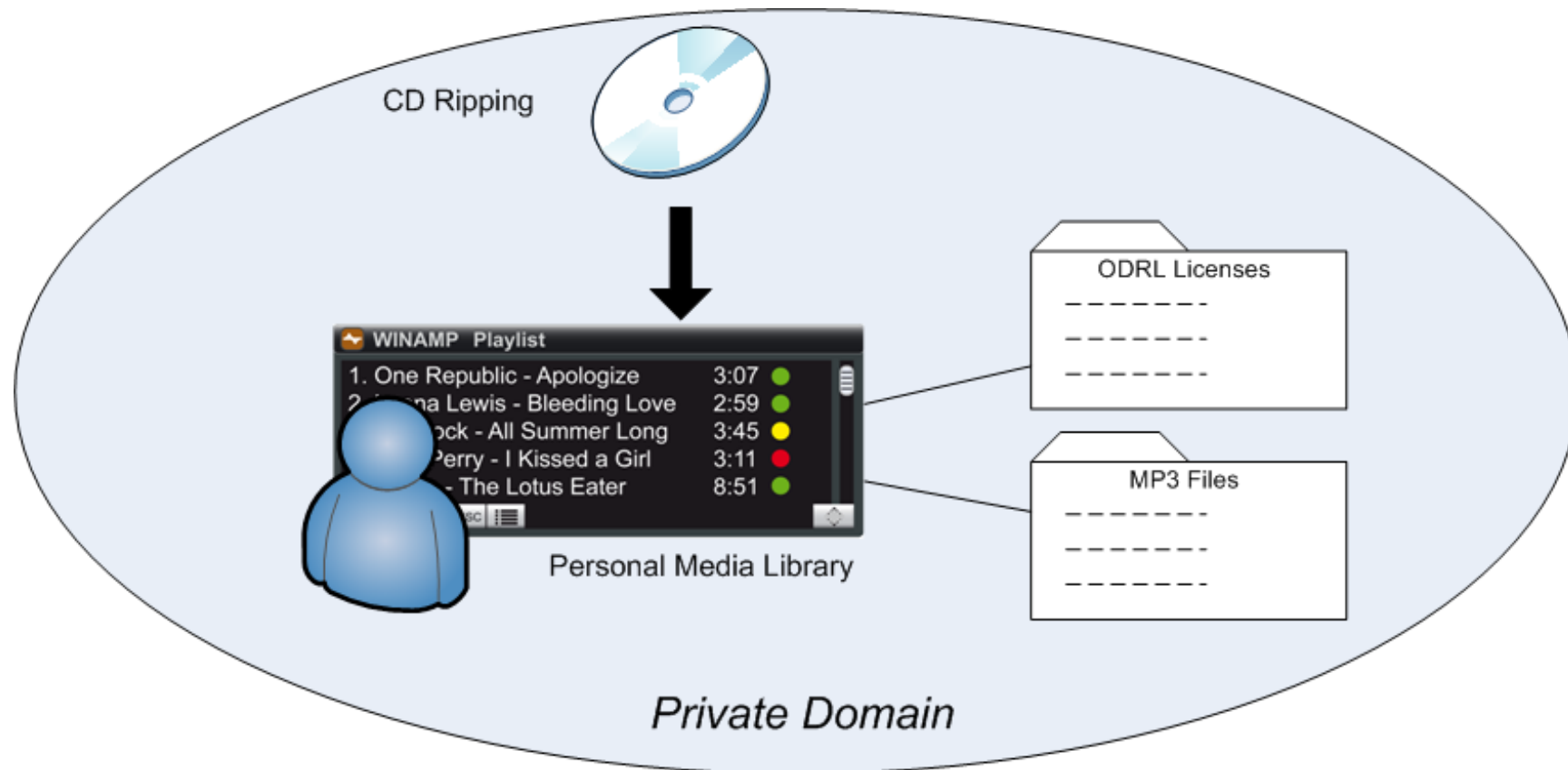
Data Sources for Personal Media Library
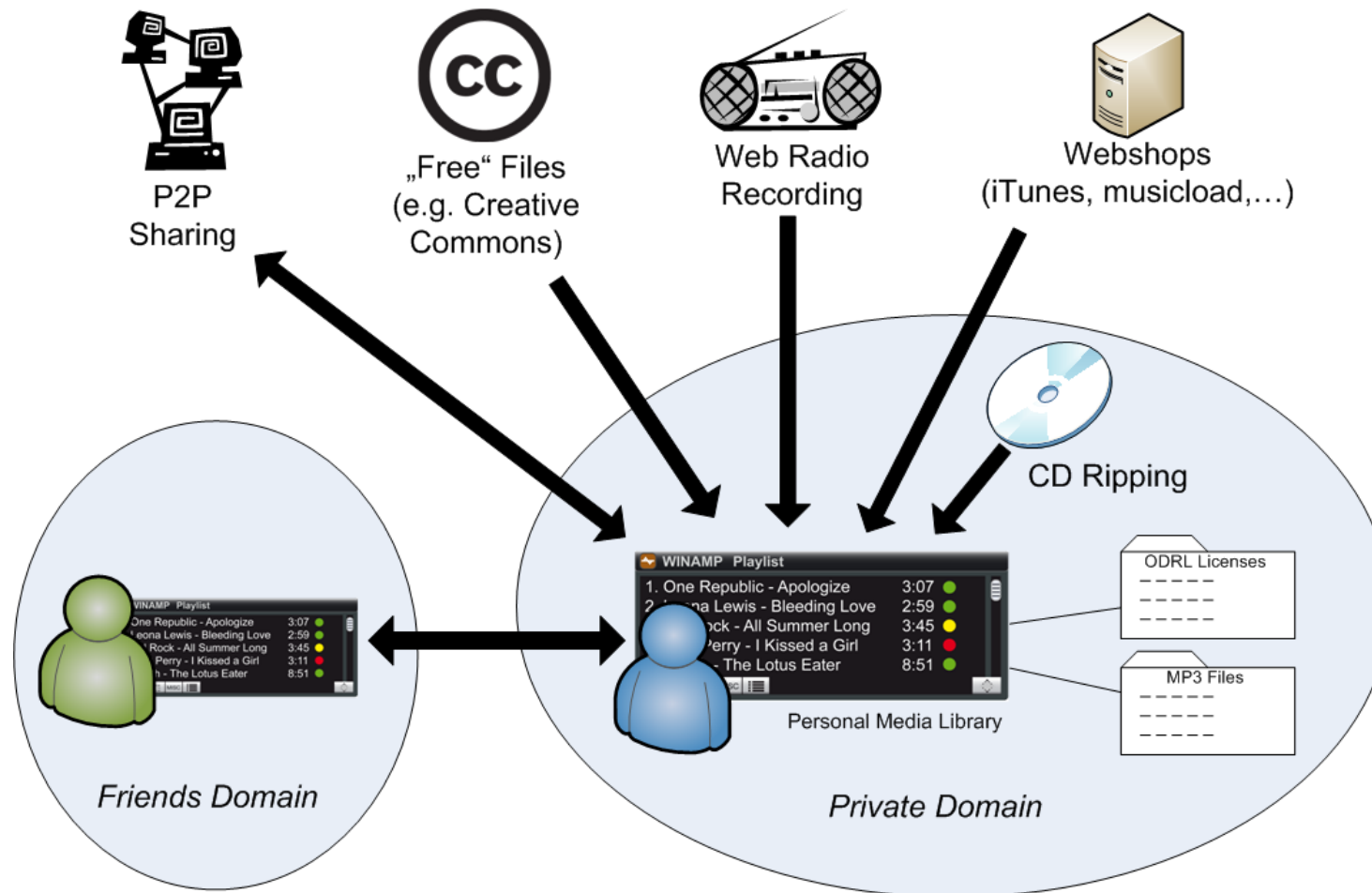
Visualization of Rights

- Rights are visualized with the colors of traffic lights
  - **Green**: License contains right to play
  - **Yellow**: No license exists
  - **Red**: No right to play (but license exists)

  - **Blue**: right to forward the file to a friend

Example of a URM license (ODRL V1.1)

```xml
<?xml version="1.0" encoding="utf-8"?>
<rights>
  <agreement>
    <context>
      <date><fixed>2009-04-20T22:33:51</fixed></date>
    </context>
    <asset>
      <context>
        <uid>c32969acdd6ab7415bf7a9e564afa4f37c974bb</uid>
        <name>
          Queen - 1994 - Greatest Hits I - Bohemian Rhapsody
        </name>
        <dlocation>
          file://C:\local_music_directory\01_Bohemian_Rhapsody.mp3
        </dlocation>
        <plocation>Helge's storage rack</plocation>
      </context>
    </asset>                                                    asset
    <permission>
      <play />
      <duplicate>
        <constraint>
          <count>3</count>
          <spatial><context>
            <uid>iso3166:DE</uid>
          </context></spatial>
        </constraint>
      </duplicate>
    </permission>                                          permissions
    <party>
      <context>
        <uid>hundacker@uni-koblenz.de</uid>
      </context>
    </party>                                                   party
  </agreement>
</rights>
```

Binding of License and Asset

- Identification of file and license by an unique characteristic
  - SHA-1 hash value of the content (body-part)

- Music file → license:
  - Calculation of the SHA-1 hash value
  - Lookup in predefined folder

- License → music file:
  - <asset><dlocation>
    Local path to MP3 file …
  - <asset><uid>
    c32969acdd6ab7415bf7a9e564afa4f37c974bb …

Further Steps

- Cover all digital media types

- Determine source of file
  by local / online analysis

- Determine right definition
  templates

- Digitally signed licenses
  from shops (receipts)

- License-aware P2P-client
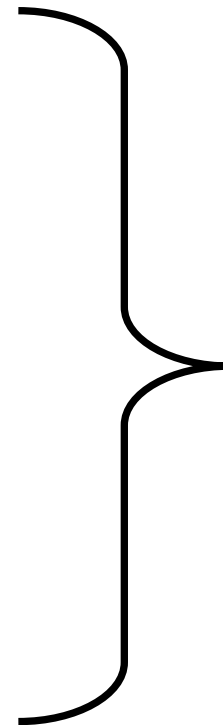
Integration
of tools and
file sources

Further Steps – Toolkit for URM

- Java framework

- Reference Implementation

- Will be released as open source software

- Aimed to be extensible via plugins

→ Contribution welcome

Conclusion

- URM is just an information tool
- URM contains "hints" to the proof of ownership
  - But not a real proof! (yet)
- Interplay with rights enforcement possible
- "Further steps" are actively being taken → URM is improving

Thank you for your attention!

Questions?

Sources

[1] HUNDACKER, H., PÄHLER, D. AND GRIMM, R., URM – Usage Rights Management, in Nützel, J. and Alapan, A. (ed.),'Virtual goods 2009', Nancy, France, 2009.

[2] IANNELLA, R., Open Digital Rights Language (ODRL) Version 1.1, Technical report, W3C, 2002.

[3] IANNELLA, R., Open Digital Rights Management, Presentation at the W3C Digital Rights Management Workshop, 2001.

[4] ROSENBLATT, W., MOONEY, S. AND TRIPPE, W. Digital Rights Management: Business and Technology, John Wiley & Sons, Inc., New York, NY, USA, 2001

[5] NÜTZEL, J. AND GRIMM, R. "Potato System and signed media format-an alternative approach to online music business" in 'Proceedings of Third International Conference on Web Delivering of Music (WEDELMUSIC'03)', 2003, pp. 23-26.

[6] ZMUDZINSKI, S. AND STEINEBACH M., Psycho-acoustic Model-based Message Authentication Coding for Audio Data in 'Proceedings of the 10th ACM workshop on Multimedia and security', Oxford, United Kingdom, 2008

[7] HUNDACKER, H., Forensic DRM, in Grimm, R. and Guth, S. (ed.),'Virtual goods 2008', Poznan University of Economics Publishing House, Poznan, Poland, 2008.